Mapping and Quantification of Land Area and Cover Types with Landsat in Carey Island, Selangor, Malaysia

ABSTRACT

Information about current land cover type is essential at a certain level to ensure the optimum use of the land resources. Several approaches can be used to estimate land cover area, where remote sensing and Geographic Information System (GIS) is among the method. Therefore, this study was undertaken to evaluate how reliable these technologies in preparing information about land cover in Carey Island, Selangor of Peninsular Malaysia. Erdas Imagine 9.1 was used in digital image processing. A primary data of Landsat TM, with spatial resolution of 30 m was acquired from scene 127/58 on July 2007. Area estimate was calculated using direct expansion method from samples proportion of each segments of land cover type (1 km by 1 km sample size). In this study, four classes of land cover type have been identified and the areas were oil palm, mangrove, water bodies and urban/bare land area. The area estimate for all classes are 11039.28 ha (oil palm), 5242.86 ha (mangrove), 4894.92 ha (water bodies), and 4751.96 ha (urban/bare land), respectively. The overall classification accuracy obtained for this study is 96%. The results showed that the use of direct expansion method for estimating land cover type area is practical to be used with remote sensing approaches.

Keyword: Land covers mapping, Satellite-based sensing, Direct expansion method